

Amendments to the Claims:

1. (Original) A fluid delivery system for infusing a medicinal fluid supplied from a reservoir into a patient at a desired rate, comprising:

- (a) a fluid line through which the medicinal fluid is conveyed from the reservoir to a patient;
- (b) a flow controller that selectively varies a rate of flow of the medicinal fluid through the fluid line;
- (c) a processor that is controllably coupled to the flow controller, said processor operating the flow controller so as to vary a rate at which the medicinal fluid flows through the fluid line; and
- (d) a flow sensor that monitors a rate of flow of the medicinal fluid through the fluid line, producing an output signal indicative thereof, said output signal being coupled to the processor, said processor controlling the flow controller in a closed-loop process as a function of the signal, to achieve the desired rate of infusion of the medicinal fluid into a patient.

2.-32. (Cancelled)

33. (New) A flow sensor device to obtain flow characteristics of fluid supplied from a reservoir into a patient, the device comprising:

an orifice disposed in a fluid path through which a medicinal fluid flows in a fluid line, said orifice having a cross-sectional size that is substantially less than that of the fluid line; and

a pressure-sensing module configured to sense a pressure drop across the orifice, said pressure sensor producing a signal in response thereto.

34. (New) The flow sensor device of claim 33 wherein the pressure sensing module further comprises a distal pressure sensor and a proximal pressure sensor, said distal pressure sensor monitoring a distal pressure of the medicinal fluid, downstream of the orifice, and said proximal pressure sensor monitoring a proximal pressure of the medicinal fluid, upstream of the orifice, a difference between the distal pressure and the

proximal pressure determining the signal supplied to the processor, which is indicative of the rate of flow of medicinal fluid through the fluid line.

35. (New) The fluid delivery system of Claim 33, wherein the pressure sensing module comprises a differential pressure sensor that monitors a differential pressure across the orifice and in response thereto, produces the signal supplied to the processor, which is indicative of the rate of flow of medicinal fluid through the fluid line.

36. (New) The fluid delivery system of claim 33, wherein the flow sensor is disposable and is connected to the fluid line.

37. (New) The fluid delivery system of claim 33, further comprising a bypass channel within the fluid line, generally in parallel with the orifice, said bypass channel being selectively opened to enable the medicinal fluid to substantially bypass the orifice when a substantially greater rate of flow of the medicinal fluid than the desired rate is required through the fluid line.

38. (New) A flow sensor device for monitoring a fluid flow through a fluid line to a patient, comprising:

a flow sensor adapted to be disposed in a fluid path of a medicinal fluid flowing through a fluid line, said flow sensor producing a signal indicative of a rate of flow of a medicinal fluid through the fluid path, said flow sensor includes an orifice disposed in the fluid path, said orifice having a cross-sectional size that is substantially less than that of the fluid path, both proximal and distal to the orifice, and a pressure-sensing module configured to sense a pressure drop across the orifice, said pressure sensor producing the signal in response thereto.

39. (New) The device of Claim 38, wherein the pressure sensing module comprises a differential pressure sensor that monitors a differential pressure across the orifice and in response thereto, produces the signal supplied to the processor, which is indicative of the rate of flow of medicinal fluid through the fluid line.

40. (New) The flow control of claim 38 wherein the flow sensor is disposable and is coupled into the fluid path.

41. (New) The flow sensor device of claim 38 wherein the pressure sensing module further comprises a distal pressure sensor and a proximal pressure sensor, said distal pressure sensor monitoring a distal pressure of the medicinal fluid, downstream of the orifice, and said proximal pressure sensor monitoring a proximal pressure of the medicinal fluid, upstream of the orifice, a difference between the distal pressure and the proximal pressure determining the signal supplied to a processor, which is indicative of the rate of flow of medicinal fluid through the fluid line.

42. (New) The flow device of claim 38 further comprising a bypass channel within the fluid line, generally in parallel with the orifice, said bypass channel being selectively opened to enable the fluid to substantially bypass the orifice when a substantially greater rate of flow of the fluid than the desired rate is required through the fluid line.

43. (New) A method of obtaining flow characteristics of a fluid flow system, the method comprising the steps of:

providing a device to obtain flow rate measurements, the device comprising:

a body defining a first fluid flow passage having an inlet and an outlet,

a flow restricting element located along the first fluid flow passage between the inlet and the outlet,

an upstream fluid pressure sensor to sense an upstream fluid pressure at an upstream location in the first fluid flow passage between the inlet and the flow restricting element,

a downstream fluid pressure sensor to sense a downstream fluid pressure at a downstream location in the first fluid flow passage between the flow restricting element and the outlet,

an upstream signal contact connected to the upstream fluid pressure sensor, and

a downstream signal contact connected to the downstream fluid pressure sensor, and

directing a fluid flow through the first fluid flow passage;

obtaining a signal corresponding to the fluid pressure in the first fluid flow passage at the locations of the upstream fluid pressure sensor and the downstream fluid pressure sensor; and

determining a flow characteristic based upon the signal.

44. (New) The method of claim 43, wherein the determining step includes determining the pressure difference between the upstream and downstream fluid pressure sensors.

45. (New) The method of claim 44, wherein the determining step further includes calculating flow rate of fluid through the first fluid flow passage based on the pressure difference.